

# Management of Co-Occurring Disorders in Gambling Disorder

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## Disclosures

- **Research Grants from: NIDA, Biohaven and Janssen Pharmaceuticals**
- **Off-label use of medications**

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Source: Look Magazine, March, 1983

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Comorbidity

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Comorbidity – Means What?

- Gambling causes the other disorder?
- Other disorder causes gambling?
- Gambling one branch of a tree?
- Co-occurrence by chance?
- Common stress, genetics, trauma cause?

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Comorbidity

- Dual (or more) diagnosis is the “usual”, and not the exception
- It is important to screen and assess for co-morbid conditions when assessing for gambling disorder
- If a mental health problem or a substance abuse disorder co-exists with gambling disorder, should diagnoses be considered primary? Should both be treated simultaneously or serially?

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### Co-Occurring Disorders with Gambling Disorder

- Substance use disorders
- Attention deficit disorder
- Anxiety
- Depression
- Suicide
  - contemplation 48-70%
  - attempt 13-20%
- Personality disorders

\*Almost all data derived from treatment-seeking gamblers rather than community sample

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### Mood & Anxiety Disorders

Disorder	Prevalence	O.R.	GD First	Other First	Same Time
MDD or Dysthymia	38.6%	2.5	20.5%	73.5%	6.1%
Bipolar	17.0%	4.6	29.2%	46.3%	24.5%
Any Mood	55.6%	3.7	23.1%	65.1%	11.7%
Panic	21.9%	4.9	10.7%	81.8%	7.5%
Generalized Anxiety	16.6%	2.8	9.3%	79.8%	10.9%
Phobia	52.2%	3.2	0.0%	100.0%	0.0%
Any Anxiety	60.3%	3.1	13.4%	82.1%	4.5%

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### Substance Use & Impulse Control Disorder

Disorder	Prevalence	O.R.	GD First	Other First	Same Time
Abuse	46.2%	4.5	18.7	70.9	10.4
Dependence	31.8%	5.8	44.3	55.7	-
Nicotine	63.0%	3.9	61.3	33.0	5.7
Any Substance	76.3%	5.5	36.2	57.4	6.4
Conduct Disorder	24.9%	3.1	100.0	0.0	0.0
Intermittent Explosive	27.0%	3.1	100.0	0.0	0.0

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### Comorbidity of Gambling Disorder and Substance Use Disorders

- Rate of substance abuse 7-fold greater in gamblers than non-gamblers
- Common genetic vulnerability between gambling and alcohol dependence
- 33% of substance abusers may have gambling disorder

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### Substance Use Disinhibits Gambling

- Gambling while drinking is common
- Substances can adversely affect cognition leading to poor judgment and increased risk-taking
- Alcohol may increase risk-taking by restricting attention to only salient cues and ignoring actual odds and past losses

(Grant)

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### Gambling Promotes Substance Use

- Regular gamblers self-administered more alcohol in a simulated gambling situation than did matched study participants engaged in a control activity

(Grant)

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### Screening for Other Addictions/ Mental Health Issues

- Addiction Severity Index (ASI)
- Adult ADHD Self-Report Scale (ASRS-v1.1)
- Alcohol Use Disorder Identification Test (AUDIT)
- Drug Use Disorder Identification Test (DUDIT)
- Beck Depression / Anxiety Inventory (BDI / BAI)
- Personal Health Questionnaire (PHQ-4)
- Suicidal Behavior Questionnaire-Revised (SBQ-R)
- Brief Symptom Inventory (BSI)
- Stress Proneness Scale
- URICA (readiness to change)
- FRIEL Co-dependency Inventory

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### Social/Personal Consequences

- > **Family dysfunction and domestic violence**  
- spousal and child abuse
- > **Alcohol and other drug problems**
- > **Psychiatric conditions**  
- major depression and anxiety disorders
- > **Suicidal thoughts and attempts**
- > **Significant financial problems**  
- bankruptcy, unemployment, poverty)
- > **Criminal behavior**  
- theft, prostitution, homicide, fraud, embezzlement)

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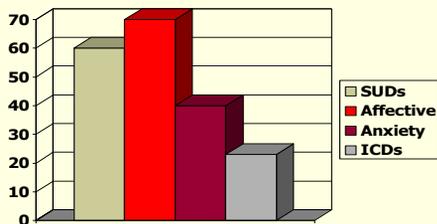
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### Co-Occurring Disorders in PG




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## ADHD and Gambling

The ADHD - GD connection: adult data

	GD	non-GD
Rate of <u>childhood</u> ADHD	15-36%	4-8%

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## Cannabis and Gambling

- Many young adult gamblers smoke marijuana
- Unclear the effects of marijuana smoking on gambling
- Gamblers using cannabis had higher rates of current alcohol use disorders and more frequent gambling behavior per week.
- Gamblers who used cannabis also exhibited significantly greater scores on measure of attentional impulsivity.

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## Obesity

- 207 non-treatment seeking young adults grouped according to weight
- Obese gamblers consumed more nicotine and lost more money per week to gambling.
- Obesity was associated with decision making and sustained attention impairments in gamblers, along with greater monetary loss due to gambling

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## Role of Trauma

- Neglectful parenting style
- Addictive behaviors - more likely to report histories of
  - physical neglect
  - emotional abuse
  - Sexual abuse

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## Suicide among problem gamblers

- Up to 20-25% of problem gamblers attempt suicide
- To seek a solution (Quick fix)?
- Goal is to seek cessation of consciousness (Escape)
- Stressor in suicide is unendurable psychological pain (Critical Self Talk)
- Emotions in suicide is hopelessness & helplessness

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## Other Health Issues

Health concerns of pathological gamblers:

- Heart disease
- Liver disease
- Hypertension
  
- More likely to have had an injury
- More likely to have needed ER visit
- 28% of homeless people had gambling problem

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### While on the topic of health...smoking!

- Elevated rates of nicotine dependence have been linked to increased gambling severity.
- Problem gamblers who smoke also show higher levels of impulsivity (UPPS-P, negative urgency) compared to non-smoking gamblers.

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### Smoking and Gambling: How and Why

- Nicotine may raise the "hedonic" value of gambling
- Nicotine may raise the "cue reactivity" of things surrounding gambling
- Nicotine may increase attention and focus on gambling ("stay in action")

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## Psychological Explanations

- Smoking eases stress of gambling
- Maximizes the “escape” and “action” of gambling
- Activity justified by gambler (e.g. “might as well”)
- High impulsivity
- Psychological myopia

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## UCLA Gambling Sleep Study

- National Epidemiological Survey: (N=3412)
  - PGs were almost 3.5 times more likely to experience a sleep problem compared to individuals who did not have a gambling problem
- Community Survey: (N=120)
  - PGs experience significantly poorer sleep quality and increased daytime sleepiness relative to those that recreationally gamble

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What explains comorbidity?

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## Developmental Biology

- Gambling addiction generally start in young adulthood.
- Environmental and genetic influences - vulnerability to and expression of gambling addiction
- Changes in brain structure and function during adolescence might influence the motivation to engage in risk-taking behaviors.

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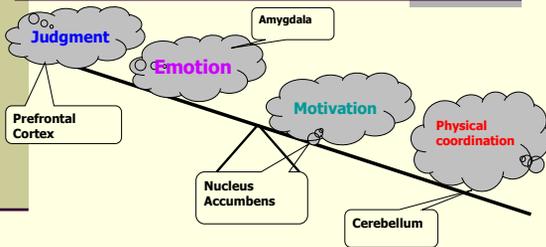
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Notice: Judgment is last to develop!

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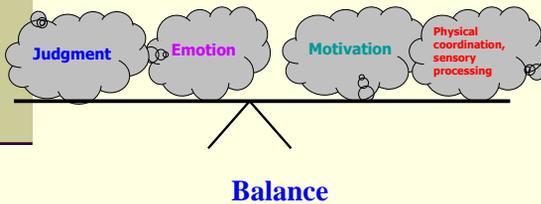
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## Age 24



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### Youth Problem Behaviors



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### Family/Genetic Factors

- Male twin study - 12 to 20% of the genetic variation in risk for gambling, and 3 – 8% of the nonshared environmental variation in the risk for gambling, accounted for by risk for alcoholism.
- Additionally, 64% of the co-occurrence between gambling and alcoholism - attributable to genes that simultaneously influence both disorders.

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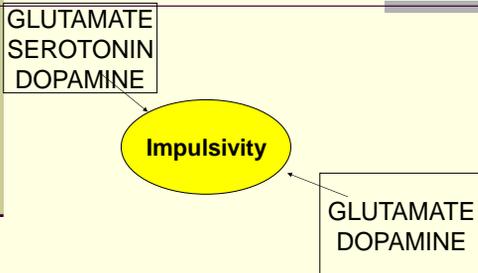
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### Neurochemistry of Behavioral Dyscontrol



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## Glutamate

- Levels of glutamate within the nucleus accumbens mediate reward-seeking behavior
- Restoring extracellular glutamate concentration in the nucleus accumbens seems to decrease cravings.

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## Role of Dopamine

- Dopamine release into the nucleus accumbens - translates motivated drive into action - a “go” signal
- Dopamine release associated with rewards and reinforcing
- Dopamine release - maximal when reward is most uncertain

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## Biochemistry – Opioid System

- The endogenous opioid system influences the experiencing of pleasure.
- Opioids modulate mesolimbic dopamine pathways via disinhibition of  $\gamma$ -aminobutyric acid input in the ventral tegmental area.
- Addictions have been associated with elevated blood levels of the endogenous opioid  $\beta$ -endorphin.

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### Neurocognition in Gambling

- Executive function deficits are greater in those with gambling than in control subjects, including:
  - Planning
  - Cognitive flexibility
  - Inhibition

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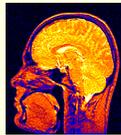
Expressed behavior

Cognition

Brain abnormalities

Etiology

Genetic ↔ Environmental



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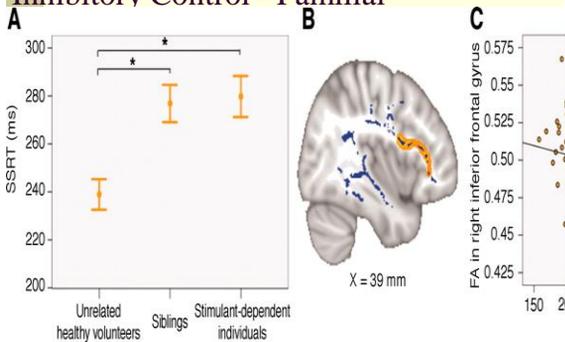
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### Inhibitory Control - Familial



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What do we do about comorbidity?

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### Treatment

- Pharmacotherapy  
No medication FDA-approved for GD
- Cognitive-Behavioral Therapy (CBT)  
Length of treatment unknown; brief interventions have shown benefit;  
Multiple versions of CBT have shown benefit

Yau YH, Potenza MN. Gambling disorder and other behavioral addictions: recognition and treatment. Harv Rev Psychiatry. 2015 Mar-Apr;23(2):134-46.

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## Psychosocial Treatments

- Motivational enhancement
- Individual and Group Cognitive behavioral therapy
  - social skills, assertiveness, anger management; cognitive restructuring
- Imaginal exposure
- Brief interventions

Grant JE, Schreiber LR, Oslaug BL. Phenomenology and treatment of behavioural addictions. Can J Psychiatry. 2013 May;58(5):252-9

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## Psychosocial Treatments (Cont)

### Brief Interventions

Single-session interventions, workbooks, bibliotherapy, or motivational interviewing.

Workbooks include CBT and motivational enhancement techniques.

CBT workbook, a workbook plus a telephone motivational enhancement.

Petry NM, Ginley MK, Rash CJ. A systematic review of treatments for problem gambling. Psychol Addict Behav. 2017 Dec;31(8):951-961

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## Motivation to Quit Gambling

1) <b>Positive</b> aspects of impulsive behavior (what are the positive things gambling gives me?)	2) <b>Negative</b> aspects of quitting (what do I lose if I stop gambling?)
3) What are the <b>negative</b> consequences of gambling (current and future?)	4) What are the <b>advantages</b> of quitting gambling (what do I have to gain?)

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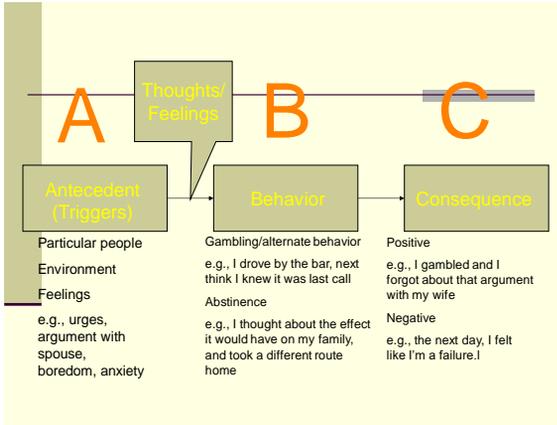
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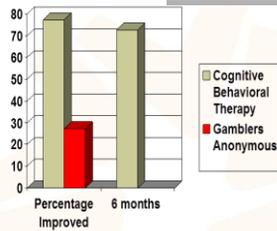
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## Psychosocial Treatments (Cont)

### Imaginal Exposure

Client and therapist develop an imaginal exposure script that includes all the relevant internal and external triggers that relate to the behavioral addiction



Grant JE, et al., Imaginal desensitisation plus motivational interviewing for pathological gambling: randomised controlled trial. Br J Psychiatry. 2009 Sep;195(3):266-7.

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## Groups

Group CBT – 3 studies

- Cognitive restructuring
- Coping skills and identification of high-risk situations.
- Imaginary exposure with response prevention.
- Financial limit setting and activity scheduling of leisure activities.
- Problem-solving training
- Relapse prevention

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# Opiate Antagonists

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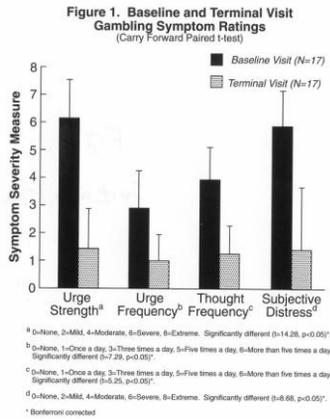
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# Glutamate Agents

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## N-Acetyl Cysteine

- Amino acid and antioxidant
- Lack of significant side effects
- Levels of glutamate within the nucleus accumbens mediate reward-seeking behavior
- NAC potentially modulates brain glutamate transmission

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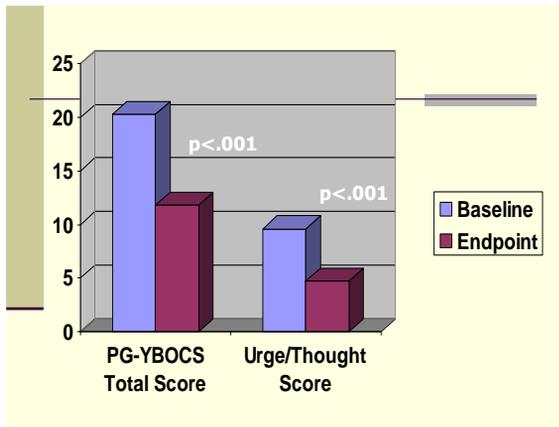
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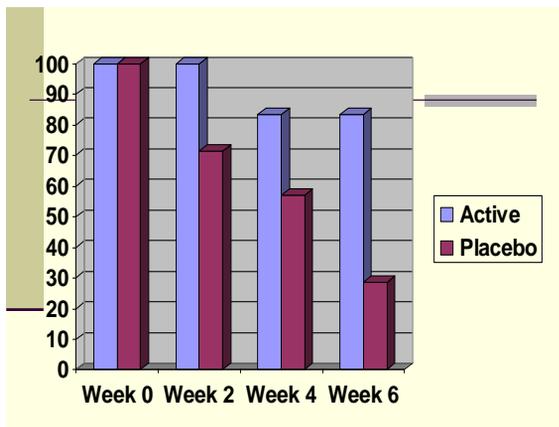
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## Clinical Subtyping

Based on Comorbidity?

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## Gambling and Anxiety

- Escitalopram
- 12-week study
- 61.5% were responders
- Scores on the HAM-A decreased by 82.8% over the 12-week period
- Mean end-of-study dose of escitalopram was 25.4±6.6 mg/day.

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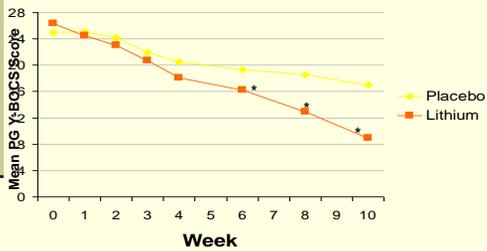
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## Bipolar Spectrum Gamblers PG-YBOCS Total Score Over Time



Hollander et al, 2002

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**Case Example**  
**Bank Robber**

- 22 year old Caucasian
- No prior legal problems
- Worked in a bank
- Problem gambling onset at age 20
- Ran up debts; borrowing from family
- Impulsively "robbed" a bank

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**Case Example**  
**Bank Robber**

- Court-ordered for an examination
- Results reveal no other psychopathology other than PG
- Neurocognitive testing showed attentional and impulsivity impairments
- No brain imaging

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**Case Example**  
**Bank Robber**

- Very personable to interview
- Accepts guilt
- Wants "treatment" instead of incarceration
- States he won't gamble ever again

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### Case Study 2 – Other Addictions

- Brad is a 30 yo separated male with 2 young children. He has a Hx of polysubstance abuse, a 10 year Hx of gambling disorder (sports), early trauma experience, and ADHD.
- He reports returning to ETOH this past year (after 7 years sober), increasing consumption since separation from wife. Abstinent from gambling 3 months, now in relapse mode. “Gambling fills more voids”.
  - Where to start?
  - What to include in his treatment plan?

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